

Comments on *Stegosaurus* Marsh, 1877 (Dinosauria, Ornithischia): proposed replacement of the type species with *Stegosaurus stenops* Marsh, 1887 (Case 3536; see BZN 68: 127–133)

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In Case 3536, Galton outlined the taxonomic history of the iconic dinosaur genus *Stegosaurus*. In this Case, Galton asked the Commission to designate *Stegosaurus stenops* as type species of the genus *Stegosaurus*, thereby allowing the holotype specimen of *Stegosaurus stenops*, USNM 4934, to become the representative of the genus *Stegosaurus*.

The Case is complicated by the fact that those who have worked on the taxonomy of *Stegosaurus* do not agree about the taxonomic validity of various genera and species, as clearly outlined by Galton. In Case 3536 Galton suggested that the type specimen of *Stegosaurus armatus* (YPM 1850), which is the type species of *Stegosaurus*, bears no synapomorphies of *Stegosaurus* or autapomorphies of its own, making the name *Stegosaurus armatus* a nomen dubium. However, Mossbrucker et al. (2009) have suggested that YPM 1850 may bear an autapomorphy, making the name *Stegosaurus armatus* valid.

If YPM 1850 is undiagnostic, the generic name *Stegosaurus* is a nomen dubium. If YPM 1850 is diagnostic, as has been tentatively suggested by Mossbrucker et al. (2009), the name *Stegosaurus armatus* would likely be restricted to YPM 1850 because, as argued by Galton in the Case, YPM 1850 bears no other synapomorphies of *Stegosaurus* (in its current usage); thus all other material currently referred to the genus *Stegosaurus* would need a new generic name. *Hypsirhophus discursus* was named by Cope (1878) for a partial dorsal vertebra (AMNH 5731). Galton (2010) considered this specimen to be diagnostic and *Hypsirhophus* a distinct genus although for Maidment et al. (2008) and Maidment (2010) *Hypsirhophus* is the next available nominal genus to contain all other species of stegosaur formerly included in *Stegosaurus*.

Stegosaurus is one of the most iconic and most recognisable dinosaurs to both the public and scientists alike; the loss of the name *Stegosaurus* is therefore an unfavourable outcome.

Maidment et al. (2008) suggested that all stegosaur material from the Morrison Formation of the USA belonged to a single species (except for material described as *Hesperosaurus mjosi* by Carpenter et al. [2001]). Maidment et al. (2008) named this species *Stegosaurus armatus*, but diagnostic characters were based on a referred specimen, USNM 4934, the holotype of *Stegosaurus stenops*, which Maidment et al. (2008) considered to be a junior synonym of *Stegosaurus armatus*. Designating *Stegosaurus stenops* as the type species of *Stegosaurus* results in USNM 4934 being the specimen on which *Stegosaurus* is based. This is entirely appropriate because USNM 4934 is one of the most complete stegosaurs known from anywhere in the world, and the specimen has been used as the reference specimen against which other stegosaurs are compared since a detailed and definitive description of it was

published (Gilmore, 1914). This is entirely in keeping with the work of Maidment et al. (2008), because USNM 4934 was used as the reference specimen in that work.

As Galton has argued in the Case, it is more favourable to designate *Stegosaurus stenops* as the type species of *Stegosaurus* than to make USNM 4934 the type specimen of *Stegosaurus armatus*, because of the questions surrounding the presence or absence of diagnostic characters in the holotype of *Stegosaurus armatus*. By designating a new type species for *Stegosaurus*, problems of taxonomy relating to YPM 1850 are circumvented. I therefore fully support the proposal by Galton in Case 3536.

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The taxon *Stegosaurus armatus* was established by O.C. Marsh in 1877 on a very fragmentary specimen from the Morrison Formation near Morrison, Colorado (erroneously stated to be 'Morrison, Wyoming' by Galton, BZN 68: 127). The specimen was encased in silicified sandstone and collected very poorly by modern standards using hammers and chisels, plus explosives to reduce the rock into more manageable pieces. The result is that much of the specimen was greatly damaged and many pieces missing, thus making it only marginally diagnostic (Carpenter & Galton, 2001), as noted by Galton (BZN 68: 130) in his petition. Such situations are unfortunately common for dinosaur specimens named during the 1800s that now require petitions to the Commission to ensure their stability (e.g. Case 3037, Charig & Chapman, 1998; Case 3506, Paul & Carpenter, 2010). In these examples, specimens displayed characters once thought to be unique but which were later found to be more widely distributed through the discovery of more complete specimens. Wilson & Upchurch (2003) refer to this as 'historical obsolescence'. *Stegosaurus armatus* certainly falls into this category in that the hexangular caudal vertebrae and large, plate-like osteoderms were thought unique among the Dinosauria. However, subsequent discoveries in Africa, Asia, Europe, and North America have shown that these characters occur in other taxa referred to the Stegosauria. As noted by Galton (BZN 68: 131), the type of *S. armatus* has no autapomorphic characters, therefore it cannot be separated from any other taxon of Stegosauria.

In contrast to *S. armatus*, the nominal species *Stegosaurus stenops* Marsh, 1887 is represented by several nearly complete skeletons and thus is very well known. These specimens form the basis for the current concept of the genus *Stegosaurus* (Marsh, 1887, 1891; Gilmore, 1914; Carpenter & Galton, 2001; Carpenter et al., 2001; Galton & Upchurch, 2004; Maidment et al., 2008; Carpenter, 2010; Galton, 2010). Because *Stegosaurus* is such an iconic dinosaur, and because the name is so well entrenched in the scientific literature, its name should be associated with material of taxonomic utility. That such is not currently the case is shown by Maidment et al. (2008) declaring *Hypsirophus discursus*, *Stegosaurus ungulatus*, *S. duplex*, *Diracodon laticeps*, and *Stegosaurus stenops* to be junior synonyms of *S. armatus*. However, the result is the creation of a 'superspecies' showing a wider range of non-ontogenetic variation throughout the skeleton than any other species of Dinosauria, except waste-basket

taxa (e.g., *Iguanodon* prior to Paul, 2008). As Carpenter (2010) has noted, the range of variation in *S. armatus* (sensu Maidment et al., 2008) cannot be replicated in other large samples of stegosaurids (e.g. *Kentrosaurus aethiopicus* from Africa), therefore casting doubt on the validity of the variations, which in turn casts doubt on the concept of *S. armatus* as defined by Maidment et al. (2008). All of this confusion would be eliminated by replacing the nominal species *S. armatus* with *S. stenops* as petitioned by Galton (BZN 68: 127–133), thereby ensuring taxonomic stability for the well-known genus *Stegosaurus*.

Additional references

- Charig, A.J. & Chapman, S.D. 1998. Case 3037. *Iguanodon* Mantel, 1825 (Reptilia, Ornithischia): proposed designation of *Iguanodon bernissartensis* Boulenger in Beneden, 1881 as the type species, and proposed designation of a lectotype. *Bulletin of Zoological Nomenclature*, 55(2): 99–104.
- Paul, G.S. 2008. A revised taxonomy of the iguanodont dinosaur genera and species. *Cretaceous Research*, 29, 192–216.
- Paul, G.S. & Carpenter, K. 2010. Case 3506. *Allosaurus* Marsh, 1877 (Dinosauria, Theropoda): proposed conservation of usage by designation of a neotype for its type species *Allosaurus fragilis* Marsh, 1877. *Bulletin of Zoological Nomenclature*, 67(1): 1–4.
- Wilson, J.A. & Upchurch, P. 2003. A revision of *Titanosaurus* Lydekker (Dinosauria – Sauropoda), the first dinosaur genus with a ‘Gondwanan’ distribution. *Journal of Systematic Palaeontology*, 1: 125–160.

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I am writing in support of the petition (Case 3536) by Galton to replace *Stegosaurus armatus* Marsh, 1877 with *S. stenops* Marsh, 1887 as the type species of *Stegosaurus* Marsh, 1877.

Maidment et al. (2008) diagnosed *Stegosaurus* on the basis of the following autapomorphies: (1) Quadrate-squamosal-paroccipital process articulation overhangs the retroarticular process of the lower jaw; (2) postzygapophyses on posterior cervical vertebrae are elongated posteriorly and overhang the back of the centrum; (3) transverse processes on anterior caudal vertebrae (except for caudals one and two) project ventrally rather than laterally; (4) large, rectangular acromial process of the scapula; (5) supra-acetabular process diverges at an angle of 90 degrees from the anterior process of the ilium; and (6) medial process present on the posterior iliac process of the ilium. They also noted that *Stegosaurus armatus* (= *Stegosaurus* sensu Carpenter et al. 2001 of my usage) differs from all other stegosaurs in having: (1) edentulous portion of the dentary anterior to the tooth row and posterior to the prementary; (2) dorsally elevated postzygapophyses of the cervical vertebrae; (3) bifurcated summits of the neural spines of the anterior and middle caudal vertebrae; (4) unexpanded posterior end of the pubis; and (5) dermal ossicles embedded in the skin on the underside of the cervical region. They referred all stegosaur taxa from the Morrison Formation (except *Stegosaurus sulcatus*, *S. longispinus*, and *Hesperosaurus mjosi*) to *S. armatus*.

Of the autapomorphies cited for STEGOSAURINAE (= *Stegosaurus*) and *Stegosaurus* (= *S. armatus*) by Maidment et al., only two characters can be observed in the holotype of *Stegosaurus armatus* (YPM 1850): transverse processes on anterior caudal vertebrae (except for caudals one and two) project ventrally rather than laterally and bifurcated summits of the neural spines of the anterior and middle caudal vertebrae. As acknowledged by Galton (2010), the presence of transverse processes on anterior caudal vertebrae (except for caudals one and two) that project ventrally rather than laterally is not confined to YPM 1850 and other specimens referred to *S. armatus* by Maidment et al. (e.g. USNM 4934, YPM 1853) but is also found in *Hesperosaurus mjosi* and *Stegosaurus longispinus*. The caudals of YPM 1850 exhibit bifurcated summits of the neural spines of the anterior and middle caudal vertebrae (Carpenter & Galton, 2001, fig. 4.4G; Galton, 2010, fig. 1b), an autapomorphy of *Stegosaurus armatus* according to Maidment et al., but as Galton demonstrated, this character is also present in *Stegosaurus unguulatus* (YPM 1853, YPM 1858), *S. stenops* (USNM 4934, DMNS 2818), *S. longispinus* (UW 20503), and the holotype of *Hypsirophus discursus* (AMNH 5731). Using the updated list of synapomorphies for Stegosauria, and STEGOSAURIDAE provided by Mateus et al. (2009, supplementary information), a stegosaurian placement of *S. armatus* is supported by the presence of two parasagittal rows of plates or spines extending from the cervical region to the end of the tail (Carpenter & Galton, 2001, fig. 4.5C). YPM 1850 can be assigned to STEGOSAURIDAE based on the presence of a dorsal process on transverse process of caudal vertebrae and anterior caudal vertebrae with bulbous swellings at the top of neural spines (Carpenter & Galton, 2001, figs 4.4D, F).

Using the criteria outlined by Galton regarding the autapomorphic structure of dermal armor for Morrison stegosaur species, *Stegosaurus unguulatus*, *S. stenops*, *S. longispinus*, and *Hesperosaurus mjosi* differ from each other in the form of the dermal armor, as well as characters of the femur and ilium, as noted by Galton. However, except for fragments of a large dermal plate, no dermal armor is preserved in the holotype of *S. armatus*, so YPM 1850 lacks any dermal characters that would distinguish it from *S. unguulatus*, *S. stenops*, *S. longispinus*, or *Hesperosaurus mjosi*.

In a recent abstract, Mossbrucker et al. (2009) indicated that the holotype of *Stegosaurus armatus* is distinguishable from other Morrison stegosaurs by the presence of unusually robust neural spines, based on recent preparation of the holotype at the Morrison Natural History Museum (MNHM). However, this character is likely to be a product of individual variation within a species, and the results of Mossbrucker et al. have not yet been published. Thus, STEGOSAURINAE (= *Stegosaurus* sensu Maidment et al., 2008) comprises three valid genera, *Hesperosaurus*, *Stegosaurus*, and *Wuerhosaurus*; *Stegosaurus* sensu Carpenter et al., 2001 (= *Stegosaurus armatus* sensu Maidment et al., 2008) comprises three valid species (*Stegosaurus unguulatus*, *S. stenops*, and *S. longispinus*), with *Stegosaurus armatus*, *Hypsirophus discursus*, *Diracodon laticeps*, and *Stegosaurus sulcatus* referable to *Stegosaurus* sensu stricto (restricted to *S. stenops*, *S. longispinus*, and *S. unguulatus*) as nomina dubia. I provisionally agree with Galton in considering *S. armatus* a nomen dubium and restricting it to YPM 1850 until the results of Mossbrucker et al. are published and YPM 1850 is fully described.

Additional references

Mateus, O., Maidment S.C.R. & Christiansen, N.A. 2009. A new long-necked 'sauropod-mimic' stegosaur and the evolution of the plated dinosaurs. *Proceedings of the Royal Society B: Biological Sciences*, **276**: 1815–1821.

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OPINION 2277 (Case 3504)***Onthophagus rugulosus* Harold, 1886 (Coleoptera, SCARABAEIDAE):
specific name conserved**

Abstract. The Commission has conserved the specific name of the dung beetle *Onthophagus rugulosus* Harold, 1886 (Coleoptera: SCARABAEIDAE), a widespread species from East Asia, by suppressing the senior secondary homonym *Elytridium rugulosum* Heer, 1870, a fragmentary fossil from the Miocene of Spitsbergen, Norway, that was transferred to *Onthophagus* in 1977. A replacement name, *O. spitsbergeniensis* nom. nov., has been provided for the dubious fossil species.

Keywords. Nomenclature; Coleoptera; SCARABAEIDAE; *Onthophagus*; *Elytridium*; *Onthophagus rugulosus*; *Onthophagus spitsbergeniensis*; dung beetles; Miocene; East Asia; Spitsbergen.

Ruling

- (1) Under the plenary power it is hereby ruled that the specific name *rugulosum* Heer, 1870, as published in the binomen *Elytridium rugulosum*, and all uses of the name before Harold (1886) are suppressed for the purposes of both the Principle of Priority and the Principle of Homonymy.
- (2) The following names are hereby placed on the Official List of Specific Names in Zoology:
 - (a) *rugulosus* Harold, 1886, as published in the binomen *Onthophagus rugulosus*;
 - (b) *spitsbergeniensis* Krell, 2010, as published in the binomen *Onthophagus spitsbergeniensis*, replacement name for *Elytridium rugulosum* Heer, 1870.
- (3) The name *rugulosum* Heer, 1870, as published in the binomen *Elytridium rugulosum* and as suppressed in (1) above, is hereby placed on the Official Index of Rejected and Invalid Specific Names in Zoology.

History of Case 3504

An application to conserve the specific name of the dung beetle *Onthophagus rugulosus* Harold, 1886 (Coleoptera: SCARABAEIDAE), a widespread species from East Asia, by suppressing the senior secondary homonym *Elytridium rugulosum* Heer, 1870, based on a fragmentary fossil from the Miocene of Spitsbergen, Norway, that was transferred to *Onthophagus* in 1977, was received from Frank-Thorsten Krell (*Denver Museum of Nature & Science, Denver, CO, U.S.A.*) on 17 September 2009. After correspondence the case was published in BZN 67: 28–31 (March 2010). The title, abstract and keywords of the case were published on the Commission's website. No comments were received on this case.

Decision of the Commission

On 1 March 2011 the members of the Commission were invited to vote on the proposals published in BZN 67: 29. At the close of the voting period on 1 June 2011 the votes were as follows:

Affirmative votes – 25: Ballerio, Bogutskaya, Bouchet, Brothers, Fautin, Grygier, Halliday, Harvey, Kojima, Kottelat, Krell, Kullander, Lamas, Minelli, Ng, Pape, Papp, Patterson, Rosenberg, Štys, van Tol, Winston, Yanega, Zhang and Zhou.

Negative votes – 0.

Alonso-Zarazaga, Lim and Pyle were on leave of absence.

Voting FOR, Grygier said he would have liked to know whether the holotype of *Onthophagus spitsbergeniensis* is extant and, if so, where and with what catalogue information, even though this is not required information for a replacement name. Ng said that the replacement name had already been proposed and was nomenclaturally valid as the BZN is a valid publication. Winston, voting FOR, commented that basing a Recent species on a fossil type usually turns out to be a mistake. Zhou, voting FOR, noted that the replacement name would be invalid if the case was not supported by the Commission.

Original references

The following are the original references to the names placed on Official Lists and Indexes by the ruling given in the present Opinion:

rugulosum, *Elytridium*, Heer, 1870, *Kongliga Svenska Vetenskaps-Akademiens Handlingar*, **8**(7): 78.

rugulosus, *Onthophagus*, Harold, 1886, in Heyden, L. von, Harold, [E.] von & Kraatz, G. 1886. *Deutsche Entomologische Zeitschrift*, **30**: 289.

spitsbergeniensis, *Onthophagus*, Krell, 2010, *Bulletin of Zoological Nomenclature*, **67**: 29.

OPINION 2278 (Case 3489)***Chrysomela elongata* Suffrian, 1851 (currently *Oreina elongata*; Insecta, Coleoptera): name conserved**

Abstract. The Commission has conserved the use of the well known alpine leaf beetle name *Oreina elongata* (Suffrian, 1851), originally published as *Chrysomela elongata*, and thus a junior primary homonym of *Chrysomela elongata* Linnaeus, 1758, currently known as *Tillus elongatus* (Linnaeus, 1758).

Keywords. Nomenclature; taxonomy; Insecta; Coleoptera; CHRYSOMELIDAE; *Oreina elongata*; alpine leaf beetle.

Ruling

- (1) Under the plenary power it is hereby ruled that the name *elongata* Suffrian, 1851, as published in the binomen *Chrysomela elongata*, is not invalid by reason of being a junior primary homonym of *elongata* Linnaeus, 1758, as published in the binomen *Chrysomela elongata*.
- (2) The following names are hereby placed on the Official List of Specific Names in Zoology:
 - (a) *elongata* Linnaeus, 1758, as published in the binomen *Chrysomela elongata*;
 - (b) *elongata* Suffrian, 1851, as published in the binomen *Chrysomela elongata*, with the endorsement that it is not invalid by reason of being a junior primary homonym of *elongata* Linnaeus, 1758, as published in the binomen *Chrysomela elongata*, as ruled in (1) above.

History of Case 3489

An application to conserve the use of the well known alpine leaf beetle name *Oreina elongata* (Suffrian, 1851), originally published as *Chrysomela elongata*, and thus a junior primary homonym of *Chrysomela elongata* Linnaeus, 1758, currently known as *Tillus elongatus* (Linnaeus, 1758), was received from Hans Silfverberg (*Finnish Museum of Natural History, Zoological Museum, Helsinki University, Helsinki, Finland*) on 3 March 2009. After correspondence the case was published in BZN 66: 320–322 (December 2009). The title, abstract and keywords of the case were published on the Commission's website. No comments were received on this case.

Decision of the Commission

On 1 December 2010 the members of the Commission were invited to vote on the proposals published in BZN 66: 321. At the close of the voting period on 1 March 2011 the votes were as follows:

Affirmative votes – 22: Ballerio, Bogutskaya, Bouchet, Brothers, Fautin, Grygier, Halliday, Harvey, Kojima, Kottelat, Krell, Kullander, Minelli, Pape, Papp, Patterson, Rosenberg, Štys, van Tol, Winston, Yanega, and Zhou.

Negative votes – 2: Lamas and Lim.

Alonso-Zarazaga, Ng, Pyle and Zhang were on leave of absence.

Voting FOR, Harvey commented that, although he felt the case was relatively straightforward and he supported the application to maintain existing usage of the junior homonym, he advised that details of any existing type specimens of both *Chrysomela elongata* Linnaeus, 1758 and *Chrysomela elongata* Suffrian, 1851 should be supplied to verify current taxonomic placements.

Original references

The following are the original references to the names placed on Official Lists by the ruling given in the present Opinion:

elongata, *Chrysomela*, Linnaeus, 1758, *Systema Naturae*, Ed. 10, vol. 1, p. 377.

elongata, *Chrysomela*, Suffrian, 1851, *Linnaea Entomologica*, **5**: 146.

OPINION 2279 (Case 3488)***Papilio danae* Fabricius, 1775 (currently *Colotis danae*; Insecta, Lepidoptera, PIERIDAE): usage conserved by the suppression of *Papilio danae* Hufnagel, 1766**

Abstract. The combination *Papilio danae* Fabricius, 1775 (Lepidoptera, PIERIDAE) has been conserved by suppression of the primary homonym *Papilio danae* Hufnagel, 1766. The current combination *Colotis danae* is well-established as the valid name for a common and widespread butterfly with many subspecies in Africa, Arabia, and Asia.

Keywords. Nomenclature; taxonomy; Insecta; Lepidoptera; PIERIDAE; *Papilio*; *Colotis*; *Colotis danae*; *Papilio eborea*; butterflies; Asia; Arabia; Africa.

Ruling

- (1) Under the plenary power it is hereby ruled that the name *danae* Hufnagel, 1766, as published in the binomen *Papilio danae*, is suppressed for the purposes of both the Principle of Priority and the Principle of Homonymy.
- (2) The name *danae* Fabricius, 1775, as published in the binomen *Papilio danae*, is hereby placed on the Official List of Specific Names in Zoology.
- (3) The name *danae* Hufnagel, 1766, as published in the binomen *Papilio danae*, is hereby placed on the Official Index of Rejected and Invalid Specific Names in Zoology.

History of Case 3488

An application to conserve the combination *Papilio danae* Fabricius, 1775 (Lepidoptera, PIERIDAE) by suppression of the primary homonym *Papilio danae* Hufnagel, 1766 was received from Torben B. Larsen (*Denmark*), R.I. Vane-Wright (*Natural History Museum, London, U.K. and Durrell Institute of Conservation and Ecology, University of Kent, Canterbury U.K.*), Krushnamegh Kunte (*Harvard University, Cambridge, MA, U.S.A.*) and Vazrick Nazari (*University of Guelph, ON, Canada*) on 17 February 2009. After correspondence the case was published in BZN 66: 250–255 (September 2009). The title, abstract and keywords of the case were published on the Commission's website. A comment in support was published in BZN 67: 65.

Decision of the Commission

On 1 September 2010 the members of the Commission were invited to vote on the proposals published in BZN 66: 253. At the close of the voting period on 1 December 2010 the votes were as follows:

Affirmative votes – 24: Ballerio, Bogutskaya, Bouchet, Brothers, Fautin, Grygier, Halliday, Harvey, Kojima, Kottelat, Krell, Kullander, Lamas, Minelli, Pape, Papp, Patterson, Rosenberg, Štys, van Tol, Winston, Yanega, Zhang and Zhou.

Negative votes – 1: Lim.

Alonso-Zarazaga, Ng and Pyle were on leave of absence.

Voting FOR, Halliday said the Case presented an overwhelming argument for the protection of the name *danae* Fabricius, 1775. The use of the name *Papilio eborea* was a clear example of the over-zealous and pedantic application of the letter of the Code, in a way that was inconsistent with stability. However, he felt it was unfortunate that the Case depended heavily on the use of Google as evidence of usage. He said he thought the Commission should make an explicit statement that they strongly discourage the use of Google because it produces spurious and misleading results. This point was made very eloquently in a Comment entitled '*Googleology*': *Powerful tool or unreliable evidence* by Lawrence, Pelkey & Soares (BZN 67: 246–254). In the future authors should be instructed not to use Google, but instead to base their arguments on a more thoughtful and critical analysis of the genuine scientific literature. Štys said that although he was voting FOR, he regretted that the published Case had not used the terminology of the Code. The authors' 'replacement name *Papilio eborea*' (paragraph 10) is actually a 'substitute name' (cf. Glossary of the Code). Moreover, Štys also felt that the number of hits in Google should not be used in nomenclatural argumentation (paragraphs 9 & 10). For example, the authors of the Case gave 3,700 hits for *Colotis danae* while only 12 for "*Hipparchia danae* Hufnagel and *Papilio danae* Hufnagel" (as from 30 September 2009); whereas Štys' subsequent search (25 September 2010) provided 19,700 for "*Colotis danae*", 64,300 for "*Hipparchia danae*" and 3,020 for "*Papilio danae*" using the names without authors, 4,630 for "*Colotis danae* Fabricius", 5,380 for "*Colotis danae* Hufnagel", 1,290 for "*Hipparchia danae* Fabricius", 998 for "*Hipparchia danae* Hufnagel", 2,620 for "*Papilio danae* Fabricius" and 1,800 for "*Papilio danae* Hufnagel". Štys said the utility and reliability of such data needed no further comment. Voting FOR, Yanega felt it should not, in principle, have been necessary to vote on this Case. He suggested that Article 29.3.5 is sufficient to indicate that the two names are not homonyms. However, the inappropriate actions of Koçak would seem to make a Commission ruling desirable to prevent further confusion.

Original references

The following are the original references to the names placed on Official Lists and Indexes by the ruling given in the present Opinion:

danae, *Papilio*, Fabricius, 1775, *Systema entomologiae, sistens insectorum classes, ordines, genera, species, adiectis synonymis, locis, descriptionibus, observationibus*. [xxxii], Officina Libraria Kortii, Flensburgi & Lipsiae, p. 476.

danae, *Papilio*, Hufnagel, 1766, *Berlinisches Magazin, oder gesammlete Schriften und Nachrichten für die Liebhaber der Arzneywissenschaft, Naturgeschichte und der angenehmen Wissenschaften überhaupt*, 2(1): 82.

OPINION 2280 (Case 3436)***Pachynematus* Konow, 1890 (Insecta, Hymenoptera, Symphyta):
generic name given precedence over *Epitactus* Förster, 1854**

Abstract. The Commission has conserved the widely used sawfly generic name *Pachynematus* Konow, 1890 by giving it precedence over a rarely used name *Epitactus* Förster, 1854, whenever the two are considered to be synonyms. Sawflies in this genus are of economic significance as pests of cereal and grass-fodder crops in North America, Europe and China.

Keywords. Nomenclature; taxonomy; Hymenoptera; TENTHREDINIDAE; NEMATINAE; *Pachynematus*; *Epitactus*; *Nematus trisignatus*; *Epitactus praecox*; sawflies; Holarctic.

Ruling

- (1) Under the plenary power the name *Pachynematus* Konow, 1890 is hereby given precedence over the name *Epitactus* Förster, 1854 whenever the two are considered to be synonyms.
- (2) The following names are hereby placed on the Official List of Generic Names in Zoology:
 - (a) *Pachynematus* Konow, 1890 (gender: masculine), type species by subsequent designation by Schmidt et al. (1998) *Nematus trisignatus* Förster, 1854, with the endorsement that it is to be given precedence over *Epitactus* Förster, 1854 whenever the two are considered to be synonyms;
 - (b) *Epitactus* Förster, 1854 (gender: masculine), type species by monotypy *Epitactus praecox* Förster, 1854, with the endorsement that it is not to be given priority over *Pachynematus* Konow, 1890, whenever the two are considered to be synonyms.
- (3) The following names are hereby placed on the Official List of Specific Names in Zoology:
 - (a) *trisignatus* Förster, 1854, as published in the binomen *Nematus trisignatus* (specific name of the type species of *Pachynematus* Konow, 1890);
 - (b) *praecox* Förster, 1854, as published in the binomen *Epitactus praecox* (specific name of the type species of *Epitactus* Förster, 1854).

History of Case 3436

An application to conserve the widely used sawfly generic name *Pachynematus* Konow, 1890 by giving it precedence over the rarely used senior subjective synonym *Epitactus* Förster, 1854, whenever the two are considered to be synonyms, was received from Andrew D. Liston (*Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany*) on 6 August 2007. After correspondence the case was published in BZN 67: 32–37 (March 2010). The title, abstract and keywords of the case were published on the Commission's website. No comments were received on this case.

Decision of the Commission

On 1 March 2011 the members of the Commission were invited to vote on the proposals published in BZN 67: 35. At the close of the voting period on 1 June 2011 the votes were as follows:

Affirmative votes – 19: Ballerio, Brothers, Fautin, Grygier, Halliday, Harvey, Kojima, Krell, Lamas, Minelli, Ng, Papp, Patterson, Rosenberg, Štys, Winston, Yanega, Zhang and Zhou.

Negative votes – 6: Bogutskaya, Bouchet, Kottelat, Kullander, Pape and van Tol. Alonso-Zarazaga, Lim and Pyle were on leave of absence.

Voting AGAINST, Bouchet commented that conditional reversals of precedence are a source of nomenclatural instability. Although he sympathised with the intention of the author, he could not technically endorse the solution that was offered to solve the case.

Original references

The following are the original references to the names placed on Official Lists by the ruling given in the present Opinion:

Pachynematus Konow, 1890, *Deutsche Entomologische Zeitschrift*, **1890**(2): 233 & 238.

Epitactus Förster, 1854 *Verhandlungen der naturhistorischen Vereines der preussischen Rheinlande und Westfalens (N.F.)*, **1**: 435.

tresignatus, *Nematus*, Förster, 1854, *Verhandlungen der naturhistorischen Vereines der preussischen Rheinlande und Westfalens (N.F.)*, **1**: 292.

praecox, *Epitactus*, Förster, 1854, *Verhandlungen der naturhistorischen Vereines der preussischen Rheinlande und Westfalens (N.F.)*, **1**: 435.

OPINION 2281 (Case 3507)***Phylloporina* Ulrich in Foerste, 1887 (Bryozoa, Fenestrata, Phylloporinina): *Retepora trentonensis* Nicholson, 1875 designated as the type species**

Abstract. The Commission has set aside *Retepora angulata* Hall, 1852 and *Retepora angulata* Hall as applied by Foerste, 1887 as type species of the Palaeozoic bryozoan genus *Phylloporina* Ulrich in Foerste, 1887 and replaced them with *Retepora trentonensis* Nicholson, 1875.

Keywords. Nomenclature; taxonomy; Bryozoa; Phylloporinina; PHYLLOPORINIDAE; *Phylloporina*; *Chasmatopora*; *Retepora angulata*; *Retepora trentonensis*; bryozoans; Palaeozoic.

Ruling

- (1) Under the plenary power all previous type species fixations for the nominal genus *Phylloporina* Ulrich in Foerste, 1887 are hereby set aside and *Retepora trentonensis* Nicholson, 1875 is hereby designated as the type species.
- (2) The name *Phylloporina* Ulrich in Foerste, 1887 (gender: feminine), type species *Retepora trentonensis* Nicholson, 1875 by designation in (1) above, is hereby placed on the Official List of Generic Names in Zoology.
- (3) The name *trentonensis* Nicholson, 1875, as published in the binomen *Retepora trentonensis* (specific name of the type species of *Phylloporina* Ulrich in Foerste, 1887, as ruled in (1) above) is hereby placed on the Official List of Specific Names in Zoology.

History of Case 3507

An application to set aside *Retepora angulata* Hall, 1852 and *Retepora angulata* Hall as applied by Foerste, 1887 as type species of the Palaeozoic bryozoan genus *Phylloporina* Ulrich in Foerste, 1887 and replace them with *Retepora trentonensis* Nicholson, 1875, was received from Frank K. McKinney (*Appalachian State University, Boone, NC, U.S.A.*) and Patrick N. Wyse Jackson (*Trinity College, Dublin, Ireland*) on 18 November 2009. After correspondence the case was published in BZN 67: 38–43 (March 2010). The title, abstract and keywords of the case were published on the Commission's website. No comments were received on this case.

Decision of the Commission

On 1 March 2011 the members of the Commission were invited to vote on the proposals published in BZN 67: 41. At the close of the voting period on 1 June 2011 the votes were as follows:

Affirmative votes – 23: Ballerio, Bogutskaya, Bouchet, Brothers, Fautin, Grygier, Halliday, Harvey, Kottelat, Krell, Kullander, Lamas, Minelli, Pape, Papp, Patterson, Rosenberg, Štys, van Tol, Winston, Yanega, Zhang and Zhou.

Negative votes – 2: Kojima and Ng.

Alonso-Zarazaga, Lim and Pyle were on leave of absence.

Voting FOR, Štys said he wondered why the more straightforward solution was not suggested that would affect only the date and not the type species. *Phylloporina* Ulrich in Foerste, 1887, type species *Retepora angulata* Foerste, 1887 non Hall, 1852 (misidentified, later renamed *Chasmatopora foerstei* McKinney & Wyse Jackson, 2010; fixed by monotypy) was a senior homonym of *Phylloporina* Ulrich, 1890 (type species *Retepora trentonensis* Nicholson, 1875; subsequently designated by Ulrich, 1895). The senior homonym (a junior subjective synonym of *Chasmatopora* Eichwald, 1855) could simply have been suppressed in favour of the junior name. However, Winston, also voting FOR, said she thought the present solution was the simplest way to clarify a confused nomenclatural problem.

Voting AGAINST, Kojima said that for the stability of the generic name *Phylloporina*, he did not find it necessary to set aside all previous type species fixations for the nominal genus *Phylloporina* and to designate *Retepora trentonensis* as the type species. Ng, also voting AGAINST, said he was not convinced that a ruling needed to be made, even though the authors made an excellent case for how complicated the taxonomy of the two genera involved was and how doubtful the true identities of the type species. These animals were of minimal scientific impact and were currently the subject of study only by taxonomists. He felt that it might be best just to accept that the type species was *Retepora angulata* Hall, 1852 and move the taxonomy on from there. It mattered not what the original intent was or whose concept it was, as long as there was now a one-off resolution and the science could progress from that point. Ng granted that there would be a short period of confusion but he felt that taxonomists could surely cope.

Original references

The following are the original references to the names placed on Official Lists by the ruling given in the present Opinion:

Phylloporina Ulrich in Foerste, 1887, *Bulletin of the Scientific Laboratories of Denison University*, **2**: 150.

trentonensis, *Retepora*, Nicholson, 1875, *Geological Magazine, New Series, Decade 2*, **2**: 37.

OPINION 2282 (Case 3502)***Coluber nummifer* Reuss, 1834 (currently *Hemorrhois nummifer*; Reptilia, Serpentes): specific name conserved**

Abstract. The Commission has conserved the widely used specific name *nummifer* Reuss, 1834 for an eastern Mediterranean colubrine snake originally published within *Coluber* Linnaeus, 1758 and currently referred to the genus *Hemorrhois* Boie, 1826, by suppressing the putative senior synonym *Coluber tyria* Linnaeus, 1758.

Keywords. Nomenclature; taxonomy; Reptilia; COLUBRIDAE; *Coluber*; *Coluber tyria*; *Hemorrhois nummifer*; coin snake; diadem snake; eastern Mediterranean; Saharo-Sindian.

Ruling

- (1) Under the plenary power the specific name *tyria* Linnaeus, 1758, as published in the binomen *Coluber tyria*, is hereby suppressed for the purposes of the Principle of Priority, but not for those of the Principle of Homonymy.
- (2) The name *nummifer* Reuss, 1834, as published in the binomen *Coluber nummifer*, is hereby placed on the Official List of Specific Names in Zoology.
- (3) The name *tyria* Linnaeus, 1758, as published in the binomen *Coluber tyria* and as suppressed in (1) above is hereby placed on the Official Index of Rejected and Invalid Specific Names in Zoology.

History of Case 3502

An application to conserve the widely used specific name *nummifer* Reuss, 1834 for an eastern Mediterranean colubrine snake originally published within *Coluber* Linnaeus, 1758 and currently referred to the genus *Hemorrhois* Boie, 1826, by suppressing the putative senior synonym *Coluber tyria* Linnaeus, 1758, was received from Beat Schätti (*San Pedro Pochutla, Oaxaca, Mexico*) and Frank Tillack (*Berlin, Germany*) on 2 September 2009. After correspondence the case was published in BZN 67: 44–52 (March 2010). The title, abstract and keywords of the case were published on the Commission's website. No comments were received on this case.

Decision of the Commission

On 1 March 2011 the members of the Commission were invited to vote on the proposals published in BZN 67: 47. At the close of the voting period on 1 June 2011 the votes were as follows:

Affirmative votes – 21: Ballerio, Bouchet, Brothers, Fautin, Grygier, Halliday, Harvey, Kojima, Krell, Kullander, Lamas, Minelli, Pape, Papp, Patterson, Rosenberg, Štys, Winston, Yanega, Zhang and Zhou.

Negative votes – 3: Bogutskaya, Ng and van Tol.

Kottelat abstained. Alonso-Zarazaga, Lim and Pyle were on leave of absence.

Voting AGAINST, Ng said that while he was very sympathetic to the case and the arguments, he did not believe the solution suggested here was the best way forward

for long-term stability. He felt that the fact that the name had been used probably incorrectly in some cases did not change the rules involved. Considering that the species of snake in question had not been widely used in other domains of biology, and was primarily used in ecology, faunistics and systematics, an eventual change in name, perhaps to *Coluber tyria* Linnaeus, 1758 with an appropriate neotype selection, should not cause substantial problems. Voting AGAINST, van Tol said that this case should have been resolved by designating a neotype for *Coluber tyria*.

Original references

The following are the original references to the names placed on Official Lists and Indexes by the ruling given in the present Opinion:

nummifer, *Coluber*, Reuss, 1834, *Museum Senckenbergianum*, 1(6): 135.

tyria, *Coluber*, Linnaeus, 1758, *Systema Naturae*, Ed. 10, vol. 1. Salvii, Holmiae, p. 224.

OPINION 2283 (Case 3390)***Archaeopteryx lithographica* von Meyer, 1861 (Aves): conservation of usage by designation of a neotype**

Abstract. The Commission has set aside all previous type fixations for the nominal species *Archaeopteryx lithographica* von Meyer, 1861 and designated a feathered specimen (BMNH 37001) in the Natural History Museum, London as the neotype. The holotype (a feather impression) was not identifiable to species and could belong to any taxon of fossil birds recognised from the Solnhofen limestone.

Keywords. Nomenclature; taxonomy; Aves; *Archaeopteryx*; *Archaeopteryx lithographica*; neotype; Solnhofen; Jurassic.

Ruling

- (1) Under the plenary power it is hereby ruled that all previous type fixations for the nominal species *Archaeopteryx lithographica* von Meyer, 1861 are set aside and specimen BMNH 37001 at the Natural History Museum, London is designated as the neotype.
- (2) It is hereby ruled that both the generic and specific names *Archaeopteryx* and *lithographica* were made available by von Meyer, 1861 in ‘*Archaeopterix lithographica* (Vogel-Feder) und *Pterodactylus* von Solenhofen. *Neues Jahrbuch für Mineralogie, Geognosie, Geologie und Petrefakten-Kunde*, p. 679.’
- (3) The entries in the Official List of Generic Names in Zoology and the Official List of Specific Names in Zoology for the names *Archaeopteryx* von Meyer, 1861 and *lithographica* von Meyer, 1861, as published in the binomen *Archaeopteryx lithographica*, are hereby emended to record the neotype designation as in (1) above and the date and pagination as in (2) above.

History of Case 3390

An application to preserve stability and universality of usage of the name *Archaeopteryx lithographica* von Meyer, 1861 by setting aside the existing holotype and designating a neotype, was received from Walter J. Bock (*Columbia University, New York, NY, U.S.A.*) and Paul Bühler (deceased, formerly of *University of Stuttgart-Hohenheim, Stuttgart, Germany*) on 5 June 2006. After correspondence the case was published in BZN 64: 182–184 (December 2007). The title, abstract and keywords of the case were published on the Commission’s website. Comments (seven supporting, one opposing) were published in BZN 64: 261–262, 65: 314–317 (with additional proposals), 66: 87–88, 66: 357–358; 67: 90–93, 67: 179. An additional comment correcting the page reference for the name was received and circulated before the vote; this will be available on the Commission website.

Decision of the Commission

On 1 March 2011 the members of the Commission were invited to vote on the original set of proposals published in BZN 64: 184 and the modified set of proposals

in BZN **65**: 317 (which included the original two proposals as 1 & 3 and the addition of proposal 2 as reflected in the ruling above). At the close of the voting period on 1 June 2011 the votes were as follows:

Original proposals:

Affirmative votes – 14: Ballerio, Bouchet, Brothers, Grygier, Harvey, Krell, Kullander, Lamas, Pape, Rosenberg, Štys, Winston, Yanega and Zhang.

Negative votes – 8: Halliday, Kojima, Minelli, Ng, Papp, Patterson, van Tol and Zhou.

Bogutskaya split her vote, Fautin abstained. Alonso-Zarazaga, Kottelat, Lim and Pyle were on leave of absence.

Modified proposals:

Affirmative votes – 20: Ballerio, Bogutskaya, Bouchet, Brothers, Fautin, Halliday, Harvey, Kottelat, Krell, Kullander, Lamas, Minelli, Ng, Papp, Patterson, Rosenberg, Štys, van Tol, Winston, Yanega, and Zhou.

Negative votes – 2: Kojima and Pape,

Grygier split his vote, Fautin abstained. Alonso-Zarazaga, Kottelat, Lim and Pyle were on leave of absence.

As the modified proposals have passed, and include all of the content of the original proposals, this decision is taken as binding for both sets of proposals.

Voting FOR both sets of proposals, Brothers said that it seemed eminently sensible to ensure clarity in the application of this famous name, which was not possible from the current holotype, and designation of the requested neotype would accomplish this. The elimination of ambiguities in its attribution was also assisted by confirmation as to the publication in which the names were made available. Also voting FOR both sets of proposals, Lamas commented that, based on the evidence available, the proposals initially suggested by Bock & Bühler, ably improved by Kadolsky, appeared to him to be the simplest and most rational solution. Voting FOR both sets of proposals Rosenberg said that some of the published comments on this case suggested hypothetical scenarios. One scenario was that detailed anatomical and morphometric study would show all of the feather-bearing nominal species known from Solnhofen are synonymous, in which case a neotype would not be necessary (i.e. given time, the case would resolve itself). Another is that future discoveries would show unequivocally that more than one feather-bearing species occurred at Solnhofen (i.e. sooner or later a neotype would be needed). He pointed out that while these scenarios were both reasonable, the Commission must deal with the current situation, not hypothetical ones. If only one nominal species had so far been described from Solnhofen, Rosenberg said he would agree that designation of a neotype was premature, but the current situation was that some workers considered there to be only one feather-bearing species at Solnhofen whereas others regard there to be more than one. As an example of the latter he cited Senter & Robins (2003, *Journal of Vertebrate Paleontology*, **23**: 961–965), who did a morphometric analysis on six *Archaeopteryx* skeletons, but a priori excluded the specimen assigned to *Wellnhoferia* ‘due to the specimen’s unique pedal and caudal characteristics’. Therefore, Rosenberg regarded designation of a neotype as necessary. Štys, who voted FOR both sets of proposals, said that it was unclear how to vote against the first set of proposals since the first set of proposals was actually only a subset of the second. He suggested a better formulation would have been to vote on whether (b)